

Claims

1. A filter medium for use in a filtering application at an application temperature, the filter medium comprising:

a substrate capable of retaining a physical structure at the application temperature;

and

a polyimide based stiffening agent adapted for treating the substrate.
2. The filter medium of claim 1 wherein the substrate comprises a polymer fabric.
3. The filter medium of claim 1 wherein the substrate is selected from the group consisting of polyarylene sulfides, aramides, glass, polyimides, acrylics, pre-oxidized acrylics and mixtures thereof.
4. The filter medium of claim 1 wherein the substrate comprises polyphenylene sulfide.
5. The filter medium of claim 1 wherein the physical structure is a pleated structure.
6. The filter medium of claim 1 wherein the polyimide is selected from the group consisting of polyamidimides, polyetherimides and polybismaleimides.
7. The filter medium of claim 1 wherein the polyimide based stiffening agent is about 2% to about 20% by weight of the total weight of the filter medium.
8. The filter medium of claim 1 wherein the application temperature is greater than about 375°F.

9. A filter medium for use in a filtering application at an application temperature, the filter medium comprising:
- a polymer substrate capable of retaining a pleated structure at the application temperature;
- a plurality of pleats formed into the polymer substrate; and
- a polyimide based stiffening agent adapted for treating the polymer substrate.
10. The filter medium of claim 9 wherein the polymer substrate is selected from the group consisting of polyarylene sulfides, aramides, glass, polyimides, acrylics, pre-oxidized acrylics and mixtures thereof.
11. The filter medium of claim 9 wherein the polymer substrate comprises polyphenylene sulfide.
12. The filter medium of claim 9 wherein the polyimide is selected from the group consisting of polyamideimides, polyetherimides and polybismaleimides.
13. The filter medium of claim 9 wherein the polyimide based stiffening agent is about 2% to about 20% by weight of the total weight of the filter medium.
14. The filter medium of claim 9 wherein the application temperature is greater than about 375°F.
15. A filter medium for use in a filtering application at an application temperature, the filter medium comprising:
- a polymer substrate capable of retaining a pleated structure at the application temperature;
- a plurality of pleats formed into the polymer substrate; and

a polyamideimide based stiffening agent adapted for treating the polymer substrate.

16. The filter medium of claim 15 wherein the polymer substrate is selected from the group consisting of polyarylene sulfides, aramides, glass, polyimides, acrylics, pre-oxidized acrylics and mixtures thereof.
17. The filter medium of claim 15 wherein the polymer substrate comprises polyphenylene sulfide.
18. The filter medium of claim 15 wherein the application temperature is greater than about 375°F.
19. A method of making a filter medium comprising:
providing a substrate;
calendering the substrate;
providing a polyimide stiffening agent;
treating the calendered substrate with the polyimide stiffening agent; and
curing the treated substrate.
20. The method of claim 19 wherein the substrate is selected from the group consisting of polyarylene sulfides, aramides, glass, polyimides, acrylics, pre-oxidized acrylics, polyphenylene sulfide and mixtures thereof; and the polyimide is selected from the group consisting of polyamideimides, polyetherimides and polybismaleimides.
21. The method of claim 19 further including pleating the treated substrate.
22. The method of claim 19 wherein the substrate comprises polyphenylene sulfide.

23. A method of making a filter medium comprising:
- providing a substrate;
 - calendering the substrate;
 - providing a polyimide stiffening agent;
 - treating the calendered substrate with the polyimide stiffening agent;
 - curing the treated substrate; and
 - pleating the treated substrate.
24. The method of claim 23 wherein the substrate is selected from the group consisting of polyarylene sulfides, aramides, glass, polyimides, acrylics, pre-oxidized acrylics, polyphenylene sulfide and mixtures thereof; and the polyimide is selected from the group consisting of polyamideimides, polyetherimides and polybismaleimides